EMC News

TOWN OF CAROLINE REPORT
Submitted by Steve Nicholson

The Caroline Town Board has held two public hearings regarding the proposed Illicit Discharge Local Law, the latest being on April 1.

Recent Resolutions include the following:

Supporting the City of Ithaca to continue using Six Mile Creek as a drinking water source. This will ensure the robustness of the cities water supply, encourage municipal cooperation and stewardship within the watershed, and help to maintain the Caroline aquifer.

Supporting the Coddington Trail Initiative. This would extend the South Hill Recreation Way past Burns Rd. into Brooktondale near Middaugh Rd., on the railroad bed owned by NYSEG. This proposed bicycle standard trail will create commuting and recreational opportunities. A long-term goal is to continue it all the way to Owego.

Established a committee to explore the options of the Town Hall Annex Project. While an official report is forthcoming, inside word has it that this committee will be recommending that the Town demolish the existing "Midnight Sun" structure, and install a new modular office and library building on the back of the existing property. This will save the Town approximately $50K, and specified upgrades will increase the energy efficiency.

The Town has contracted with the Tompkins County Planning Department for Planning Services, specifically for implementing the Comprehensive Plan. The County has already started work and they've been extremely responsive. The County is aware of the issues, which include the Z-word, and is already providing good guidance. The desire for encouraging growth near existing hamlets and hesitancy over zoning may have irrevocable collided.

Energy Independent Caroline: On April 19, the "Lighten up Caroline" project will deliver a cloth bag containing a compact fluorescent light bulb and a packet of literature on sustainable living to all 1,400 residences in Caroline. The bulbs have been purchased with a grant, and the bags are purchased from SewGreen, an Ithaca-based sustainable sewing program, using re-used, donated material. Feedback so far has indicated that ALL municipalities would like to participate. If you would like to help make bags, go to www.sew-green.org. If you would like to help on April 19, contact energyindependentcaroline@gmail.com.

ENERGY COMMITTEE REPORT
Submitted by Kenny Christianson

The Energy Committee met on March 20. We discussed the carbon tax resolution and the differences between a carbon tax and a cap and trade system. Members of the Citizens for Climate Protection, Sylvester Johnson, Margaret MacCasland, and Jean Fudala, also attended and presented their arguments in favor of a carbon tax and against a cap and trade system. The committee decided to offer another resolution to the EMC after Neha Khanna's presentation this month. As preparation for the April EMC meeting, please read the attached article about regulating negative externalities.

The Committee also met with Giovanni Freesia, who is interested in developing vertical axis wind turbines in the Tompkins County Area. Arel LeMaro reported on the library solar panels and the county's sustainability efforts.

The Energy Committee meeting sheduled for April 17 is postponed. We will try to reschedule at this month's EMC meeting.

REGULATING NEGATIVE EXTERNALITIES I
Submitted by Kenny Christianson

In the first installment, I discussed the economic concept of negative externalities and potential remedies. Today I will compare different regulatory mechanisms that can be used to reduce negative externalities.

Suppose that three electricity generators emit a pollutant known as gunk. Each of the factories produces five tons of gunk, so there is a total of 15

tons of gunk emitted into the atmosphere each day. Suppose that the costs of reducing each ton of gunk for each factory are given by the table below:

Cost to reduce	Factory A	Factory B	Factory C
First ton	100	105	200
Second ton	100	110	300
Third ton	100	160	400
Fourth ton	100	210	500
Fifth ton	100	260	600

Here, Factory A has a constant cost of emissions reduction of $100 per ton, while for factories B and C the costs of emissions reductions increases. Factory C has the highest costs of emissions reduction.

If policymakers decide that 15 tons of gunk is too much, what options are available to reduce the pollution? We will briefly explore several alternatives. Suppose that the goal is to reduce gunk emissions by 6 tons, so that 9 tons of gunk remain. Here are some potential options:

a. *Command and Control* – The government could require each factory to reduce two tons of gunk. While this may seem fair on its face, it imposes much greater costs on Factory C. Factory A would only spend $200 to reduce two tons of gunk and factory B would spend $215, while the costs to factory C would be $500. The total costs to all three factories would be $915.

b. *Gunk Tax* – A second option is to impose a tax on the gunk emitted by each factory. A tax of $106 is the minimum tax that would lead to a reduction of 6 tons of gunk. Each factory has the option of paying the tax or paying for emissions reduction. As long as the tax is greater than the cost of gunk reduction, then each factory has the incentive to reduce the emissions of gunk rather than paying the tax. Factory A finds it beneficial to eliminate all 5 tons of pollution rather than paying the tax. The cost of emission reduction of $100 is less than the tax of $106. For Factory B, the first ton of gunk will be eliminated, since the costs of $105 to reduce the first ton of pollution is less than the tax of $106. But for the last four tons, the firm is better off paying the tax. For Factory C, the firm will pay the tax to emit all five tons, since its costs of emission reduction are greater than the tax. So with a gunk tax of $106, Factory A would reduce 5 tons and Factory B would reduce 1 ton. Total reductions of gunk are again 6 tons, but now the costs of emission reduction are only $605 instead of the $915 cost of the first option.

c. *Cap and Auction* - The government could prohibit gunk emissions without a permit, and then sell 9 permits that would entitle the owner to emit one ton of gunk each. In this scheme, the factory with the highest costs of pollution is willing to pay the highest price for the permits. For the first permit, factory C would be willing to pay up to $600, since that is the cost of reducing the fifth ton of gunk for Factory C. Similarly, it would be willing to pay up to $500 for the second permit, up to $400 for the third permit and up to $300 for the fourth permit. For the fifth permit, Factory B would be willing to pay $260 and $210 for the sixth permit. Then Factory C would be willing to pay $200 for the seventh permit, and Factory B would purchase the last two. So Factory C would buy 5 permits, factory B would buy 4, and Factory A would not purchase any. Factory A would find it cheaper to reduce emissions on their own rather than paying for permits. So the results are the same as with a gunk tax. Factory A would reduce 5 tons, Factory B would reduce one ton, and again the costs of emission reductions would be $605.

d. *Cap and Trade* – Rather than auctioning off permits, the government could create pollution allowances and allow the factories to trade with each other. Suppose that each factory is given an allowance to emit three tons of gunk. If a factory emits less than three tons of gunk, it gains a credit that it can trade to other factories. To emit more than three tons, the factory has to buy credits from others. For Factory C, the costs of reducing the first ton of gunk would be $200. For Factory A, the cost is only $100. So both Factory A and Factory C would agree to a price between $100 and $200 so that Factory A would sell a credit to Factory C. Factory C would also be willing to purchase a second credit from Factory A. For Factory B, the costs of reducing the first ton is $105, while it is only $100 for Factory A, so Factory B would be willing to pay up to $105 for a credit, and Factory A would agree to that price.

Under a cap and trade, Factory A would reduce its emissions by five tons. Two are required under the cap and the other three tons of emissions reductions would provide credits to Factory A. Factory A could then sell two of those credits to Factory C and one of the credits to Factory B. Factory A would reduce gunk emissions by 5 tons, Factory B by 1 ton, and Factory C would purchase credits rather than reduce pollution. The costs of emissions reduction is again $605.

Under a gunk tax, cap and auction, or cap and trade, the results are the same. Factory A emits no gunk, Factory B emits 4 tons, and Factory C emits 5 tons. We get the same distribution of gunk under each of the schemes, and the costs of emissions reductions are the same at $605. It is only under command and control regulation that the costs of emissions reductions are higher. Theoretically, the effects of a gunk tax or cap and trade are the same.